Agricultural By-Product?

- Local farm land
- Agricultural value
- Suitable material
- Storage
- Operation
- Marketing

Spread about 280,000 wet tons/yr on 80,000 ac

Farm land?

Dr. Elwood Black - Developing & Operating Land Application Programs
**Value**

Knowing your material

<table>
<thead>
<tr>
<th>Nutrients &gt; 1% or Lime &lt;10 tons/ac</th>
<th>Knowing your material</th>
</tr>
</thead>
</table>

**Variability**

Knowing your material

**Possible reasons for variability**

Knowing your material

---

*Dr. Elwood Black - Developing & Operating Land Application Programs*
Possible reason for variability

Wetter or drier, new feed stock, etc.

University test plots with wheat
Lime rate?
N immobilization rate?

Suitable material

Chemically & bio evaluation

Metals – Ag, As, B, Ba, Cd, Cr, Co, Cu, Fe, Hg, Mo, Ni, Se, Pb, TI, V & Zn (846-6010 & 7471 & extractable, ag analysis, for Cu & Zn)
Organics – Volatile (8260) and semi-volatile (8270)
Salt - Na
Pathogens

Now call in the By-Product folks

Knowing your material

Suitable material

6 wtons by-product = 1 ton Ag Lime

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Soil pH @ 90 days</th>
<th>Soil pH @ 195 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>6.12</td>
<td>5.92</td>
</tr>
<tr>
<td>By-product</td>
<td>6.40</td>
<td>6.46</td>
</tr>
<tr>
<td>Lime</td>
<td>6.44</td>
<td>6.48</td>
</tr>
</tbody>
</table>

Knowing your material
Seeing the beauty in the rough

Physical variability

Not suitable

Large clumps

Converting a waste into a real agricultural by-product

Storage to dream of
Dr. Elwood Black - Developing & Operating Land Application Programs
Dr. Elwood Black - Developing & Operating Land Application Programs
Dr. Elwood Black - Developing & Operating Land Application Programs
Agricultural By-Product?

• Local farm land
• Agricultural value
• Suitable material
• Storage
• Operation
• Marketing